

## Marine Life Protection Act Initiative



### Overview of the North Coast Fisheries Uses and Values Project

Presentation to the MLPA Blue Ribbon Task Force  
March 1, 2010 • Fort Bragg, California



## Presentation Outline

- Project overview
- Data collection process
- Data from each sector
  - Summary statistics
  - Current status of datasets
  - Examples of datasets
- MPA impact analyses
- Availability and use of data



## Project Overview

- Ecotrust contracted by the MLPA Initiative to:
  - Supplement existing data
  - Collect data on commercial, commercial passenger fishing vessel (CPFV), and recreational fishing (use and values) to characterize spatial extent and relative importance
  - Evaluate the maximum potential economic impact (gross and net) of marine protected area (MPA) arrays and proposals
  - Focus is on the fisheries, and not on regional multipliers of economic impact



## Use of Survey Information

- **Planning:** Data are to be to inform the marine protected area design process through use of regional and port level maps and summary statistics
- **Evaluation:** Use the survey data and maps to:
  - Evaluate the maximum potential impacts of various MPA proposals on the commercial, CPFV, and recreational fishing grounds
  - Evaluate maximum potential economic impact on commercial and CPFV fisheries



## Data Collection Process

- Data collection components:
  - Outreach through informational one-on-one and group meetings and working with port liaisons
  - Survey design
  - Data collection – Open OceanMap (desktop and online)
  - Quality assurance and control
  - Analysis
  - Review/presentation of results



## Survey Design

- Identify key fisheries in the region
  - Differentiate in terms of practices (target strategy) and/or gear configurations (e.g., Dungeness crab – trap; urchin – dive)
- Stratify north coast study region into port complexes
- Sampling goals:
  - At least 50% of the total ex-vessel revenue from 2000-07 by fishery, gear type, and port
  - At least 5 fishermen, except in cases where the overall population is <5, then 100%



## Survey Design – Commercial

- Target commercial fisheries: anchovy/sardine, Dungeness crab, herring, rockfish, salmon, seaweed, coonstriped shrimp, smelt, surfperch, urchin
- Fisheries also are differentiated by gear type when applicable
- Other fisheries: hagfish, sablefish
- Ports: Crescent City, Trinidad, Eureka, Shelter Cove, Fort Bragg, Albion



## Survey Design – Recreational

- Recreational user groups: CPFV (captains), divers, kayak anglers, private boaters
- Target recreational species: California halibut, Dungeness crab, Pacific halibut, rockfish/ bottomfish (including cabezon and greenlings), salmon, red abalone
- Target species vary by user group – e.g., abalone by dive only



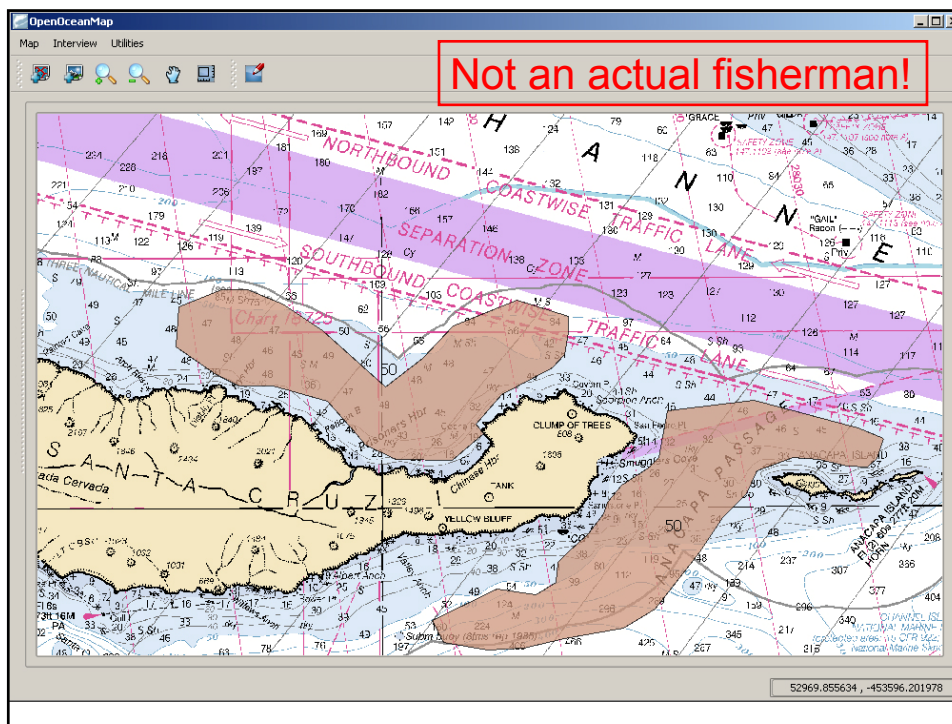
## Survey Process

- Conduct outreach and work with port liaisons on survey design and identification of fishermen
- Use computer based map interface (Open OceanMap) to collect interview data
- In-person interviews for commercial and CPFV
- In-person and online surveys for recreational
- Fishermen map the extent and stated importance of their fishing grounds



## Data Collection

- All interviews follow a shared protocol for each fishery in which the interviewee participates:
  - Fishermen are asked to identify all fishing areas/locations that are of economic importance over their cumulative fishing experience and to rank these using a weighted percentage – an imaginary “bag of 100 pennies”
  - For recreational fishermen, “economic” is removed and just “importance” is used
  - Non-spatial information on demographics and operations (costs) also is collected



## Quality Assurance and Control

- Edits may need to be made: e.g., for shape A, fishermen F12345 – 10 fathoms shore side and 50 fathoms ocean side, from Humboldt Bay to....
- After editing, we send each fisherman a set of his/her maps (paper or electronic) for review
- Conduct follow-up meetings with participants and fishing community to verify results
- Work with fishing community to ensure confidentiality of any publically displayed information



## Summary Statistics – Commercial

- Conducted 219 interviews, resulting in 440 fishing grounds
- Example representation: Number of fishermen and percent (%) of north coast study region total ex-vessel revenue (2000–07):
  - Dungeness crab – trap: 141 fishermen (59%)
  - Urchin – dive: 32 fishermen (59%)
  - Salmon – troll: 86 fishermen (34%)
  - Rockfish – fixed gear: 55 fishermen (62%)



## Current Status of Datasets – Commercial

### NCSR commercial fishing maps available in MarineMap

Fishery	Crescent City	Trinidad	Eureka	Shelter Cove	Fort Bragg	Albion	NCSR
Anchovy/Sardine (Lampara Net)	—	—	Yes	—	—	—	Yes
Dungeness Crab (Trap)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Herring (Gillnet)	Yes	—	Yes	—	—	—	—
Rockfish (Fixed Gear)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Salmon (Troll)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seaweed (Hand Harvest)	Yes	—	—	—	Yes	—	—
Shrimp (Trap)	Yes	—	—	—	—	—	Yes
Smelt (Brail – Dip Net)	Yes	—	Yes	—	—	—	Yes
Surfperch (Hook and Line)	Yes	—	Yes	—	—	—	Yes
Urchin (Dive)	—	—	—	—	Yes	Yes	Yes

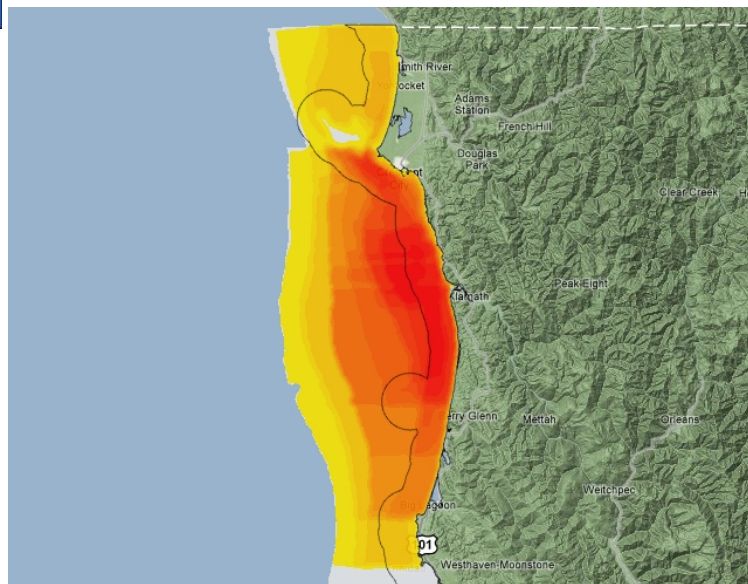
- Rockfish (fixed gear) includes nearshore, deeper nearshore, and lingcod using hook and line, longline, and trap fishing gear. Bottomfish targeted with these gears include cabezon and greenling.
- A map of seaweed (hand harvest) also is available for the Elk area.



## Commercial Dungeness Crab - NCSR



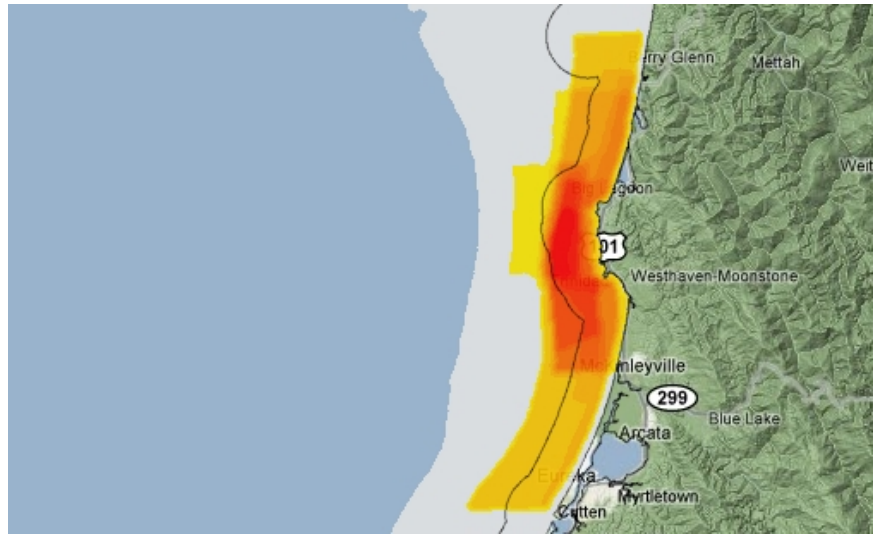
## Commercial Dungeness Crab – Crescent City



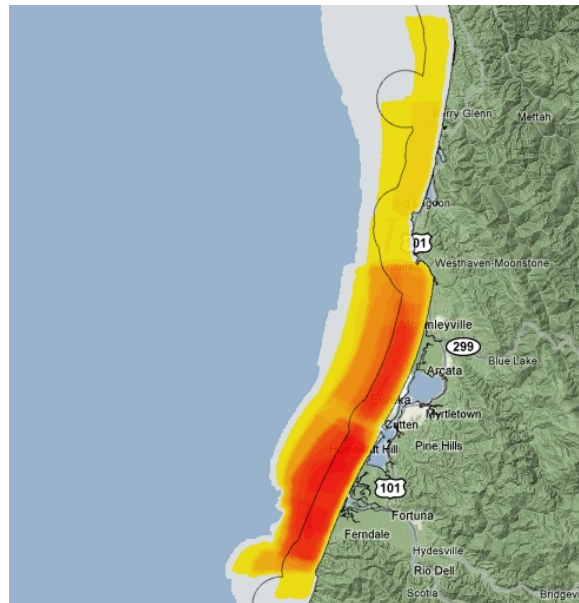




## Commercial Dungeness Crab – Trinidad

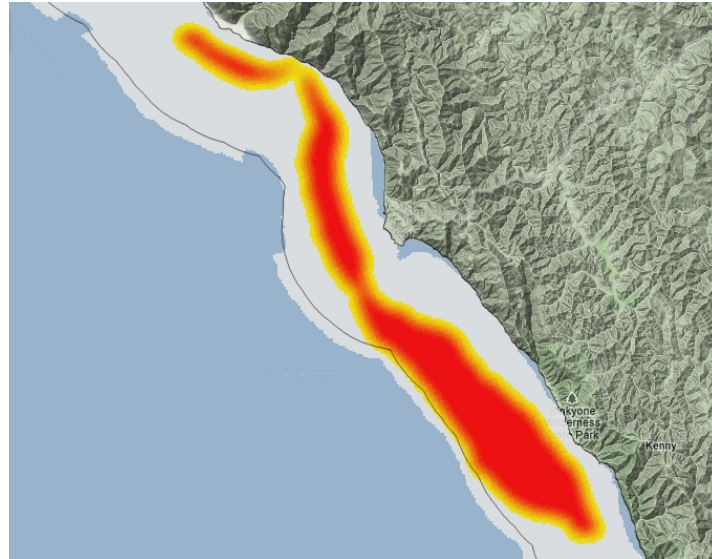


## Commercial Dungeness Crab – Eureka

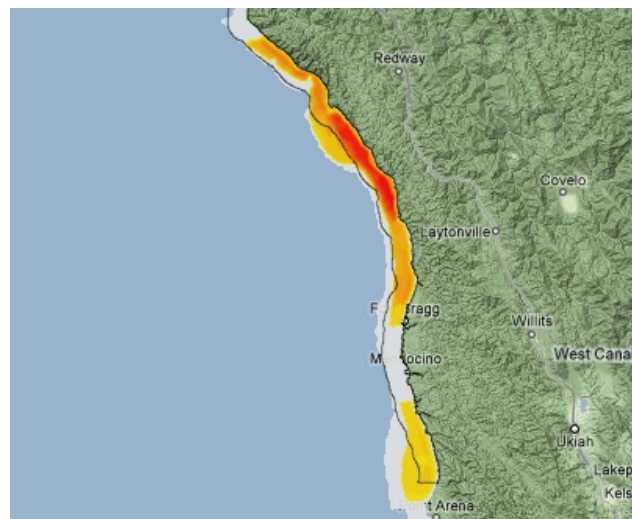




## Commercial Dungeness Crab – Shelter Cove

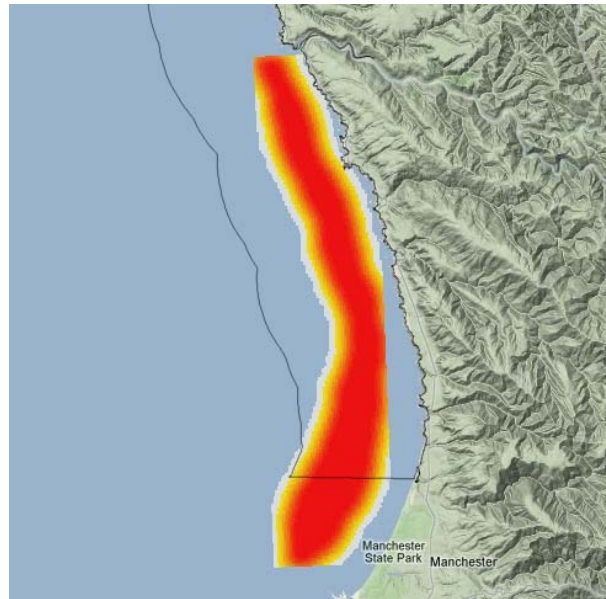


## Commercial Dungeness Crab – Fort Bragg





## Commercial Dungeness Crab – Albion



## Current Status of Datasets – CPFV

- Conducted 22 interviews with CPFV captains, resulting in 73 fishing grounds

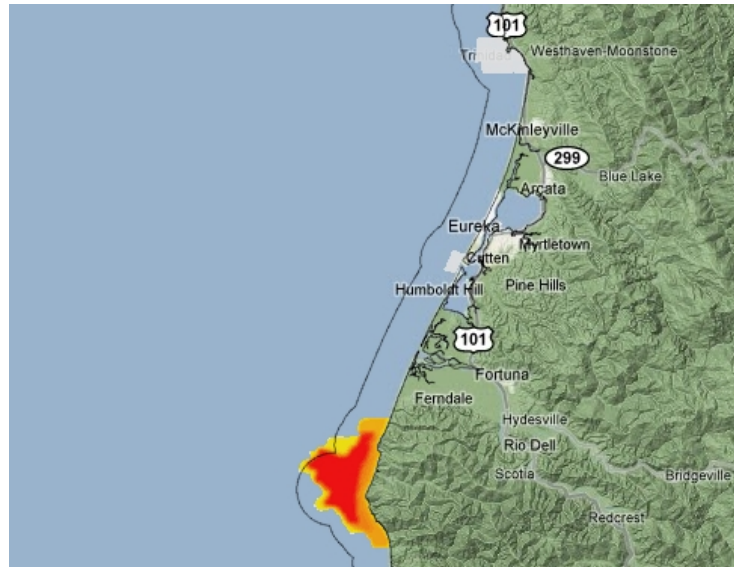
### NCSR CPFV fishing maps available in MarineMap

Fishery	Crescent City	Trinidad	Eureka	Shelter Cove	Fort Bragg	NCSR
California Halibut	—	Yes	Yes	—	—	—
Dungeness Crab	Yes	Yes	Yes	—	Yes	—
Pacific Halibut	—	Yes	Yes	Yes	—	—
Rockfish	Yes	Yes	Yes	Yes	Yes	—
Salmon	Yes	Yes	Yes	Yes	Yes	—

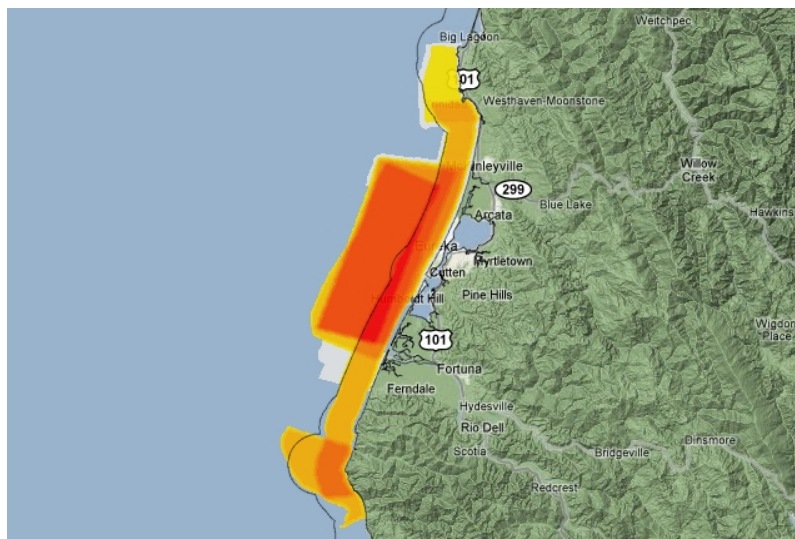
- Currently, CPFV maps are provided only at the port level (not the region wide level) so that larger ports with a higher number of respondents do not bias the relative importance maps.



## CPFV Rockfish – Eureka



## CPFV Salmon – Eureka





## Summary Statistics – Recreational

- Surveyed 574 fishermen (549 in-person, 17 online and 8 phone)
- Resulted in 687 surveys and 1,592 fishing grounds as fishermen could provide information for more than one user group
  - Dive: 140 (209 fishing grounds)
  - Kayak: 20 (33 fishing grounds)
  - Private vessel: 527 (1,305 fishing grounds)



## Current Status of Datasets – Recreational

### NCSR recreational fishing maps available in MarineMap

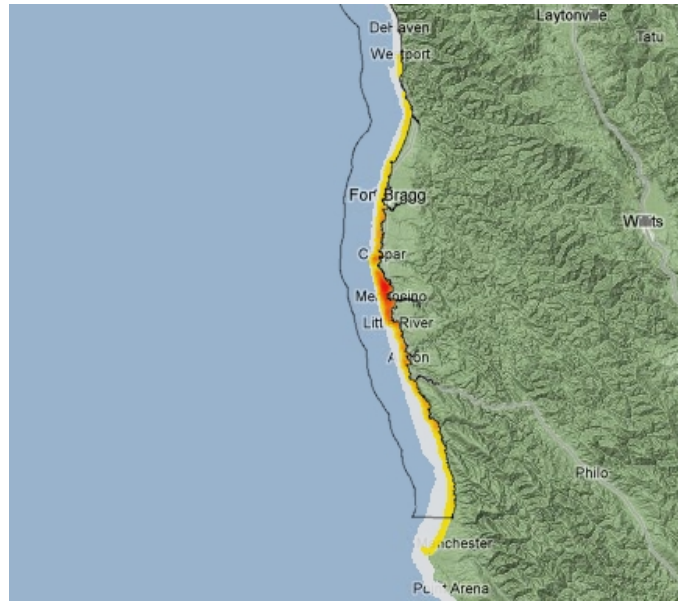
User group	Fishery	Crescent City	Trinidad	Eureka	Shelter Cove	Fort Bragg/Albion	NCSR
Dive	Abalone	Yes	Yes	Yes	Yes	Yes	—
	Dungeness Crab	—	—	—	—	Yes	—
	Rockfish/Bottomfish	Yes	Yes	Yes	Yes	Yes	—
Kayak	Rockfish/Bottomfish	—	Yes	—	—	Yes	—
	Salmon	—	—	—	—	Yes	—
Private Vessel	California Halibut	Yes	Yes	Yes	Yes	Yes	—
	Dungeness Crab	Yes	Yes	Yes	Yes	Yes	—
	Pacific Halibut	Yes	Yes	Yes	Yes	Yes	—
	Rockfish/Bottomfish	Yes	Yes	Yes	Yes	Yes	—
	Salmon	Yes	Yes	Yes	Yes	Yes	—

- Results show that our sample response is strongest in Eureka for private vessel and in Fort Bragg/Albion for kayak and dive

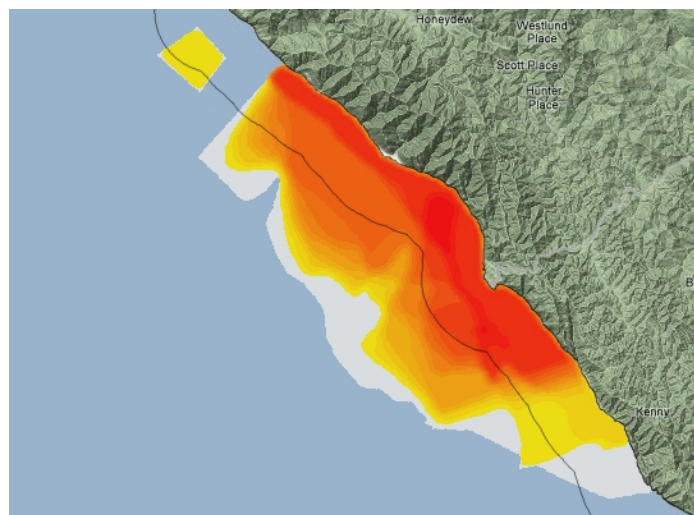




## Recreational Dive Abalone: Fort Bragg/Albion

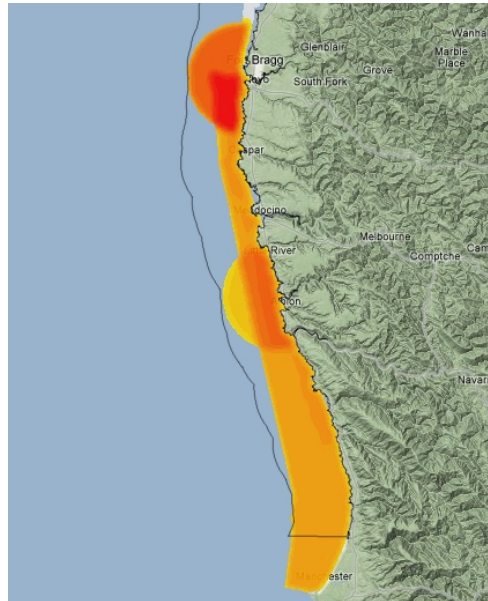


## Recreational Private Boat Pacific Halibut: Shelter Cove





## Recreational Kayak Salmon: Fort Bragg/Albion



## Gaps in Recreational Survey

- Difficult to determine recreational fishing population across space, time, and demographics, especially by mode
  - This survey is not intended to be representative of the north coast study region recreational fishing population based on the above criteria.
  - Our intention was to interview as many recreational fishermen as possible given the time and budget constraints.
  - Results are intended to reflect areas of relative importance to each sector for targeted species, vetted further by experts and/or current stakeholder group members for accuracy and best use in the process



## Gaps in Recreational Survey

- We acknowledge and look to improve upon:
  - The technical difficulties in participating in an online survey and potential biases
  - Geographical (e.g., inland counties) and demographic (e.g., subsistence or non-English speaking) representation
  - Perceived lower representation for the recreational kayak sector



## MPA Impact Analyses

- Reported results represent the maximum potential impacts (i.e., “worst case scenario”)
- Multiple analyses conducted to assess potential impacts

	Commercial	CPFV	Recreational
Potential impacts on fishing grounds (area and stated value)	✓	✓	✓
Potential net economic impacts -1st order	✓	✓	
Potential gross economic impacts -1st order	✓		
Disproportionate impacts on fisheries	✓	✓	
Disproportionate impacts on individuals	✓		





## Potential Impacts of Proposed MPAs

- Based on the aggregate fishing grounds and cost estimates derived from the data collection effort:
  - Distinguish between total fishing grounds and fishing grounds inside state waters
  - Determine percentage of area and value affected
  - Consider or identify “outliers” – i.e., fishermen or fisheries likely to experience disproportional impacts
  - Evaluate the effect of existing fishery management area closures and other constraints on fishing grounds (Rockfish Conservation Area and existing MPAs)



## Data Access and Availability

- Only aggregated maps (similar to the maps just presented) will be made available and visible via MarineMap to external proposal authors and stakeholder group members
- Any information that is confidential, even in aggregate form, will not be visible but will be used in evaluation process (we will identify which fisheries and notify MLPA Initiative staff)
- Additional products
  - Data collection methods and summary statistics
  - MPA impact evaluation methods



## Next Steps

- Incorporate updates to the data collection methods and summary statistics report
  - Mariculture
  - Available to stakeholder group by March 24-25 meeting
- Finalize Round 1 evaluation
  - Results to be presented at the next MLPA Master Plan Science Advisory Team and regional stakeholder group meetings
- Evaluation reports incorporated into MarineMap